

Name

Answers

Date

24-32 = 2

APR. 3

Alg. 2 Demonstration of Understanding- Quadratics 2 Part 2

1. In two or more sentences, explain what the ZPP allows you to do with factors?

The zero product property allows you to take any numbers/factors that are multiplied to equal zero, & separate them & set them equal to zero to solve for the x-values that make them zero.

2. Use the following equation for parts a-c: $4b^2 + 8b + 7 = 4$

a. Find the zeros of the quadratic.

b. Find the vertex of the quadratic

$$4b^2 + 8b + 7 = 4 \quad \frac{2 \cdot 6 = 12}{2 + 6 = 8}$$

$$x = -\frac{b}{2a} = -\frac{8}{2(4)} = -\frac{8}{8} = -1$$

$$4b^2 + 8b + 3 = 0 \quad \begin{array}{r} -4 \quad -4 \\ 2b + 1 = 0 \\ -1 \quad -1 \end{array}$$

$$4(-1)^2 + 8(-1) + 3 = y$$

$$4b^2 + 2b + 6b + 3 = 0 \quad \frac{2b = -1}{2} \quad \frac{2b = -1}{2} \quad \frac{2b = -1}{2}$$

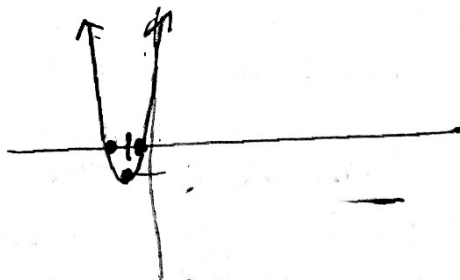
$$4 - 8 + 3 = y$$

$$2b(2b+1) + 3(2b+1) = 0 \quad \frac{2b+1}{2} \quad \frac{2b+1}{2} \quad \frac{2b+1}{2}$$

$$y = -1$$

$$(2b+1)(2b+3) = 0 \quad \frac{2b+3}{2} \quad \frac{2b+3}{2} \quad \frac{2b+3}{2}$$

- c. Construct a rough sketch of the quadratic by labeling the roots and vertex.



3. Use the following equation for parts a-c: $16t^2 + 28t + 6 = 0$

a. Find the zeros of the quadratic.

b. Find the vertex of the quadratic

$$16t^2 + 24t + 4t + 6 = 0 \quad \frac{24 \cdot 4 = 96}{24 + 4 = 28}$$

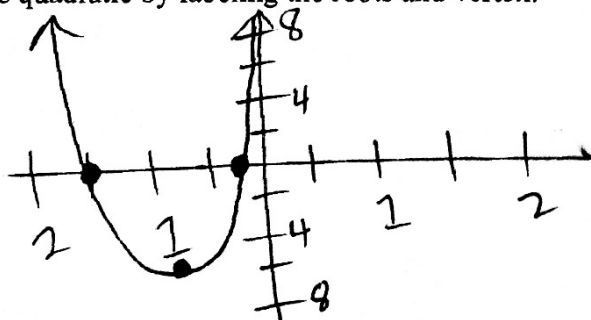
$$x = -\frac{b}{2a} = -\frac{28}{2(16)} = -\frac{28}{32} = -\frac{7}{8}$$

$$8t(2t+3) + 2(2t+3) = 0 \quad \begin{array}{r} 2t+3=0 \\ -3 \quad -3 \\ 2t = -3 \\ t = -3/2 \end{array}$$

$$y = 16\left(-\frac{7}{8}\right)^2 + 28\left(-\frac{7}{8}\right) + 6 = 12.25 - 24.5 + 6 = -6.25$$

$$(2t+3)(8t+2) = 0 \quad \frac{8t+2=0}{8t=-2} \quad t = -1/4$$

- c. Construct a rough sketch of the quadratic by labeling the roots and vertex.



Find the roots of each quadratic and write each one as a coordinate.

12. $4x^2 = 144$

$$\frac{4x^2}{4} = \frac{144}{4}$$

$$x^2 = 36$$

$$x = \pm 6$$

$$(6, 0) \quad (-6, 0)$$

13. $x^2 - 15x = 0$

$$x(x - 15) = 0$$

$$x = 0 \quad x - 15 = 0$$

$$+15 \quad +15$$

$$x = 15$$

$$(0, 0)$$

$$(15, 0)$$

14. $4x^2 - 13x = 12$

$$4x^2 - 13x - 12 = 0$$

$$4x^2 - 16x + 3x - 12 = 0$$

$$\frac{4x}{4x} \quad \frac{3}{3}$$

$$4x(x - 4) + 3(x - 4) = 0$$

$$(x - 4)(4x + 3) = 0$$

$$3 \cdot 16 = -48$$

$$3 \cdot 16 = -13$$

$$x - 4 = 0$$

$$x = 4$$

$$4x + 3 = 0$$

$$4x = -3$$

$$x = -3/4$$

$$(4, 0)$$

$$(-3/4, 0)$$

15. $5x^2 - 5x - 60 = 0$

$$5x^2 + 15x - 20x - 60 = 0$$

$$\frac{5x}{5x} \quad \frac{20}{20}$$

$$5x(x + 3) - 20(x + 3) = 0$$

$$(x + 3)(5x - 20) = 0$$

$$(x + 3)(5x - 20) = 0$$

$$x + 3 = 0$$

$$x = -3$$

$$5x - 20 = 0$$

$$5x = 20$$

$$x = 4$$

$$(-3, 0)$$

$$(4, 0)$$

16. Using bullet points and complete sentences, describe the steps used to find zeros of a function.

- Make the quadratic = to zero.
- Find two numbers that mult. to "a.c" & combine to "b".
- Rewrite the linear term using the two #'s found
- group & factor the GCF from each group.
- Then factor the common term/factor from both terms.
- Apply the zero product property to separate each binomial & set equal to zero
- Solve both binomials for zero!

Rate your understanding for priority standard APR. 3 and explain what you can do to deepen your understanding of each standard.

APR.3 1 2 3 4